OXC - 3281
Copy 5 of 8

2 April 1962

MEMORANDUM FOR : The Record

SUBJECT : OXCART Fuel

I. FUEL PROCUREMENT

A. History and Background:

PWA-523 fuel is a highly refined paraffinic hydrocarbon the production of which differs from that of conventional JP fuels in the areas of processing, facilities, and crude selection. The fuel itself differs primarily from other JP fuels in that heating value, luminosity, vapor pressure and particularly thermal stability are superior.

25X1A The development of PWA-523 was a joint endeavor of Pratt and Whitney and the [redacted] beginning in 1959 and continuing until February 1961. On 20 February 1961, representatives of Pratt & Whitney, AFCIC-5, and Development Branch, DPD met and decided to develop additional sources for PWA-523. Subsequently, between February and April 1961, the

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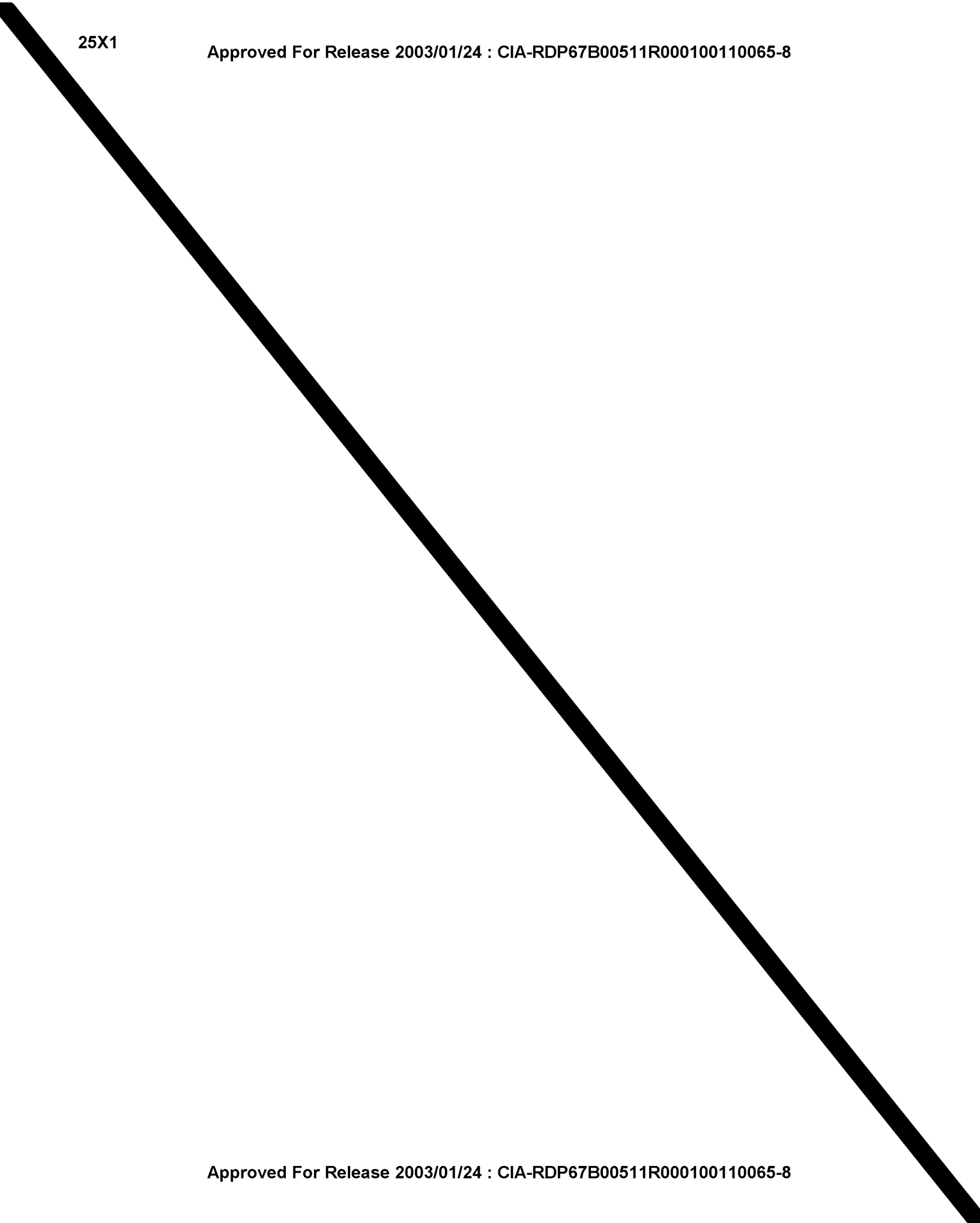
expressed optimism. All concerned, however, unanimously expressed the need for further development in producing, storing, handling and transporting (with emphasis on ocean tanker transport) fuels of this type that are highly susceptible to deterioration.

25X1A A meeting was held at [redacted] on 12 May 1961 to discuss the
25X1A [redacted] fuel storage requirements. Present were representatives
from [redacted] Lockheed, PWA, AFCIC-5 and Development
25X1A Branch, DPD. Fuel tank farm construction, handling, and
25X1A transportation criteria together with preliminary fuel usage
25X1A estimates were discussed. A proposal on these subjects was
prepared by [redacted] and submitted by [redacted] during the
25X1A month of May. On 31 May 1961, AFCIC-5 advised Development Branch, 25X1
DPD, that a contract was negotiated with [redacted] for the technical
guidance on the storage, handling and transportation but not fuel
production. However, on 19 June 1961, AFCIC-5 advised Development
5X1 Branch, DPD, that [redacted] also would supply the initial 3,000,000



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C. Recommendations:

Bearing in mind that the costs for developing PWA-523 fuel has to date been born by industry alone and that to date only one of the companies participating in the development has received a firm contract, the following courses of action should be followed:

(1) In order to attain our original goal of 19,000 BTU/lb. or better fuel, the companies now participating should be encouraged to undertake additional research in product improvement. [redacted] has already expressed a capability to produce 18,960 BTU/lb. fuel without other compromise.

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(2) Multiple source procurement should be immediately instituted to ensure continuing fuel availability and maximum quality minimum cost fuel for GXCART.

(3) In view of the advantages to be gained by GXCART and other similar programs in terms of continued fuel development, and strategic geographical location of facilities, it is recommended that consideration be given to the purchase of additional quantities of PWA-523 fuel by the Government over and above that required for GXCART alone to assure continued industry participation and to gain additional production, handling, and transportation experience. Barring USAF regulatory limitations heretofore experienced, this fuel could be used in many present USAF applications.

II. FUEL AND TANKER DEPLOYMENT:

A. Base Storage:

On 17 August 1961, AFCIG-5 was notified of the GXCART requirement for planning and implementing the setting up of base fuel storage facilities at certain locations in the United States as well as at Thule and Eielson. It is anticipated that these storage farms would serve for both operational and training KC-135 fuel staging points.

In December AFCIG-5 reported that facilities at Castle Air Force Base, in the order of 100,000 gallon capacity were available but would need modification in the fuel filter systems, tanks and pumps to insure clean fuel delivery to the KC-135's. To date no positive steps have been taken to retrofit the Castle Air Force Base system to accommodate PWA-523 fuel.

The Spring of 1963 should see the OXCART operational planning advanced to the point where the Thule and Kielson tank farms should be stocked and operating. Plans call for the storage of 700,000 gallons annually at Thule and 350,000 gallons at Kielson. If we are to meet proposed operational target dates, immediate action should be taken to provide fuel facilities at Thule and Kielson.

B. Tankers:

AFCIG-5 to date has not reported definitively on the KC-135 compatibility with PWA-523 fuel and flushing procedures required, total refueling capability, etc.

C. Recommendations:

In view of the short summer period during which fuel and supply can be moved to Artic areas and the immediate need for a KC-135 for the flight test program the following courses of action are recommended:

(1) That an immediate inspection of existing facilities at Thule and Kielson be made and tankage be reserved and prepared to receive PWA-523 fuel.

(2) That arrangements be made at once to deliver 350,000 gallons of fuel to Thule and 175,000 gallons to Kielson during the coming Artic summer.

(3) That AFCIG-5 provide a KC-135 tanker in condition to and capable of in-flight refueling the A-12 with PWA-523 during Lockheed's flight testing of the A-12.

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[redacted]
Deputy Chief, Development Branch
DPD

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